## Pharmacological Actions of Divaza

Divaza is a nootropic medication containing release-active (highly diluted) antibodies to brain-specific protein S-100 and endothelial nitric oxide synthase (eNOS). It is primarily used for cognitive impairment, cerebral atherosclerosis, chronic cerebral ischemia, and related conditions like asthenia. Its actions are derived from preclinical and clinical studies, focusing on neurotrophic, antioxidant, and neuroprotective effects. Below is a comprehensive list of its reported pharmacological actions, based on available data from clinical trials, animal models, and product descriptions. Note that due to its ultra-low dose formulation, traditional quantitative metrics (e.g., onset time, duration, or concentration-dependent influences) are limited or not well-documented in standard pharmacokinetic terms. Where available, I've included qualitative influences and any temporal aspects from studies. The drug's effects are generally balanced and wide-ranging, with improvements often observed over weeks of treatment.

1. **Antioxidant Effect**:
    - **Description and Influence**: Reduces oxidative stress (OS) by restoring endogenous antioxidant system activity, inhibiting lipid peroxidation, and increasing lipoprotein resistance to oxidation. This attenuates cellular damage in cerebral atherosclerosis, leading to improved cognitive function and reduced pathological brain changes.
    - **Temporal Values**: In a 12-week randomized trial (n=124 patients with cerebral atherosclerosis), significant improvement in lipoprotein oxidation resistance was seen by week 12 (latent period increase of 14.8 ± 14.7 seconds vs. baseline, p=0.007 compared to placebo). Effects build gradually; no acute onset data.
    - **Quantitative Metrics**: 100% of patients in the Divaza group showed cognitive improvement by end of treatment (vs. 89.5% in placebo, p=0.0272).

2. **Neuroprotective Effect**:
    - **Description and Influence**: Protects neurons from hypoxia and ischemia by reducing pathological brain tissue changes in animal models of hypoxia. Enhances brain integrative activity, restoring function in organic CNS lesions (e.g., post-ischemic or traumatic).
    - **Temporal Values**: In animal hypoxia models, antihypoxant activity reduces damage over hours to days. Clinical effects on cognitive stabilization appear within 12 weeks of daily use.
    - **Quantitative Metrics**: Demonstrated in models with reduced brain pathology; no specific numerical values for neuroprotection extent.
3. **Anxiolytic Effect**:
    - **Description and Influence**: Reduces anxiety by calming the central nervous system (CNS), improving mood and emotional behavior. Influences GABAergic and serotonergic pathways indirectly via S-100 modulation.
    - **Temporal Values**: In behavioral studies (e.g., training models), improvements in emotional behavior occur during acute testing phases (hours after dosing). Chronic use shows sustained effects over weeks.
    - **Quantitative Metrics**: In doses of 7.5 ml/kg (animal equivalent), improved behavior in training paradigms; human studies show reduced anxiety in cognitive disorder patients over 12 weeks.
4. **Antidepressant Effect**:
    - **Description and Influence**: Alleviates depressive symptoms, increases activity and motivation, and reduces mental asthenia. Complements anxiolytic action for overall mood stabilization.
    - **Temporal Values**: Effects observed in chronic administration; improvements in asthenia and motivation build over 12 weeks.
    - **Quantitative Metrics**: Effective in reducing asthenic symptoms in elderly patients with mild-moderate cognitive disorders (multicenter study, dose: 2 tablets 3x/day).

5. **Antiamnesic Effect**:
    - **Description and Influence**: Improves memory and cognitive functions, countering amnesia in models. Enhances recall and learning by normalizing brain integrative activity.
    - **Temporal Values**: Cognitive recovery seen by end of 12-week treatment in all patients (100% response rate).
    - **Quantitative Metrics**: Stabilizes cognitive impairment in cerebral atherosclerosis ($p=0.0128$ vs. placebo).
6. **Antihypoxant Effect**:
    - **Description and Influence**: Increases resistance to oxygen deprivation, reducing hypoxic damage in brain tissue.
    - **Temporal Values**: Acute models show protection within hours; chronic use prevents progression in ischemia.
    - **Quantitative Metrics**: Reduces pathological changes in animal hypoxia models; no human time-specific data.
7. **Vasodilatory/Improved Cerebral Blood Flow**:
    - **Description and Influence**: Enhances endothelial NO synthase activity, improving blood circulation and reducing ischemia-related symptoms.
    - **Temporal Values**: Effects on circulation contribute to cognitive benefits over 12 weeks.
    - **Quantitative Metrics**: Part of overall nootropic action; no isolated metrics.

8. **Anti-Asthenic Effect**:
    - **Description and Influence**: Reduces physical and mental fatigue, increasing motivation and activity levels.
    - **Temporal Values**: Improvements in asthenia noted in elderly/senile patients over treatment course (e.g., 12 weeks).
    - **Quantitative Metrics**: Effective in multicenter studies for mild-moderate cognitive disorders.

Limited data exists on precise onset/duration for each action due to the drug's mechanism (ultra-dilution means effects are modulatory rather than direct). Influences are interconnected, with antioxidant/neuroprotective effects underpinning cognitive and mood improvements. Most studies show cumulative benefits over 12 weeks, with no rapid acute effects reported.

## Half-Life

No specific half-life data for Divaza is available in the searched literature. Due to its highly diluted antibody-based composition (technologically processed, affinity-purified antibodies at ultra-low concentrations), standard pharmacokinetic parameters like elimination half-life are not typically measured or applicable, as active components may not reach detectable plasma levels. Preclinical studies suggest rapid modulation of target proteins (e.g., S-100 and eNOS) without traditional metabolism/excretion profiles.

## Bioavailabilities

Divaza is administered orally (as dispersible tablets, often sublingually for faster absorption). No quantitative bioavailability data (e.g., percentage absorbed into systemic circulation) is reported, likely due to its ultra-low dose nature.

- **Oral Route**: Primary administration; tablets dissolve in the mouth, potentially bypassing first-pass metabolism for partial sublingual absorption. No AUC or F (bioavailability fraction) values found. Assumed high relative bioavailability given sublingual/oral design, but not quantified.
- **Other Routes**: No data on intravenous, intramuscular, or other forms; not indicated for non-oral use.
- **Influencing Factors**: No differences noted for age, gender, or food effects. In studies, consistent effects across patients suggest reliable absorption, but no comparative bioavailability studies (e.g., vs. IV) exist.

## Dosages

Divaza is dosed as orally dispersible tablets (each containing 6 mg antibodies to S-100 + 6 mg antibodies to eNOS, in highly diluted form). Standard regimen is chronic for cognitive/ischemic conditions.

- **Recommended Dosage**: 2 tablets 3 times daily (total: 6 tablets/day), dissolved in the mouth (sublingual/oral). Duration: 12 weeks in trials, but can be longer for maintenance.
- **Minimum Effective Dose**: Not explicitly defined; studies use 2 tablets 3x/day as effective for cognitive improvement (100% response in one trial). Lower doses (e.g., 1 tablet 3x/day) not tested, but animal equivalents (7.5 ml/kg, roughly scaled) show effects.
- **Safe Range**: 1-2 tablets up to 3-4 times daily appears safe based on protocols. In a vertigo prevention study, 1 tablet 4 times at 30-min intervals (acute loading) was tolerated. No upper limit specified, but trials cap at 6 tablets/day.
- **Maximum Tolerated/Safe Dose**: No toxicity reported up to studied doses; considered safe with no serious adverse events in trials (n=124+). Common side effects: none frequent; rare mild issues like headache or nausea.
- **Adjustments**: No dose changes for renal/hepatic impairment, age, or weight. In elderly/senile patients, same dose effective and safe. Start with full dose; no titration needed.

Overall, Divaza is well-tolerated with a favorable safety profile. Data is primarily from Russian studies and product info; Western PK/PD studies are limited. For precise clinical use, consult a healthcare provider.